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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/644,036

08/20/2003

Yu-Seock Yang

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KED & ASSOCIATES, LLP

P.O. Box 221200

Chantilly, VA 20153-1200

EXAMINER

LEADER, WILLIAM T

ART UNIT

PAPER NUMBER

1795

MAIL DATE

DELIVERY MODE

08/07/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/644,036	Applicant(s) YANG ET AL.	
	Examiner WILLIAM T. LEADER	Art Unit 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 April 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 2-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Receipt of the papers filed on April 8, 2008, is acknowledged. Claims 2-19 are pending.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
3. Applicant's amendments to the claims have overcome the rejection of record under 35 U.S.C. 112, second paragraph.

Claim Rejections - 35 USC § 103

4. Claims 2-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over the admitted prior art combined with Japanese patent publication 2001-110939, hereinafter Hirobumi et al, in view of the text *Thin Film Technology* by Berry et al for the reasons of record.

Response to Arguments

5. At page 11 of the Remarks/Arguments, applicant points out that the claimed method includes supplying power to one of the first or the second power connection portion and forming a gold-plated layer on a connection pad to which the one of the

first or the second power connection portion is electrically connected. The method also includes disconnecting the one of the first or the second power connection portion from the external power source, and connecting the other of the first or second power connection portion to an external power source. Applicant argues at page 12 of the Remarks/Arguments that even if the external power source taught by Berry were connected to Hirobumi's device, the resulting combination still neither discloses nor suggests first and second power connection portions. Applicant further argues that figures 1-3 of the present application, which are labeled "conventional art", merely show that power is supplied to two separate portions 1a and 1b of a base material 8 through a single power supply line 1, and neither disclose nor suggest a first power connection portion formed by first circuit patterns, and a second power connection portion formed by second circuit patterns.

6. Applicant's arguments have been fully considered, but they are not persuasive. The Hirobumi et al patent is directed to forming a coating on selected areas of a circuit board by electroplating. The problem to be solved is the use of a flow line for electric current flow in the process of partial electrolytic plating (electroplating). See paragraph [0004] of the machine English language translation. This problem corresponds to the process of the conventional art shown in figures 1-3 of applicant's application, where line 5 is the flow line (power supply line). As explained in paragraph [0005], Hirobumi et al overcome the problem of the

conventional process by using the pad of a component side of the circuit board, deposited non-electrolytic copper, the side of a through hole, and a solder side as the flow object. That is, circuit patterns on the circuit board are used as the electrical conductor to supply electric current to the conduction pad being electroplated rather than a conventional flow line. This corresponds to the use of circuit patterns in the process recited by applicant to conduct electric current to the conduction pad being electroplated. Hirobumi et al disclose that by not using the convention flow line for partial electrolytic plating, the space may be used for making the circuit board more dense, as well as smaller and lighter (paragraph [0005], last sentence).

7. The figures of Hirobumi et al show a portion of a printed circuit board. A single connection pad is illustrated in the region identified by the number "8" in figure 5. Hirobumi et al describe the process steps for electroplating nickel and gold onto the single connection pad shown in the figures. As explained in the previous office actions, the steps of Hirobumi et al correspond to the steps recited by applicant in using a first power connection portion to fold a gold-plated layer on a connection pad to which the first power connection portion is connected. However, based on figures 1-3 of the present applicant, one of ordinary skill in the art would recognize that a practical circuit board includes a plurality of connection pads, some of which are bonding pads and some of which are ball pads, and a plurality of circuits. While the figures of Hirobumi et al show electroplating onto a single

connection pad, one of ordinary skill in the art would recognize that it would be desirable to electroplate the same nickel/gold coating onto the other connection pads as is done in the conventional process shown in applicant's figures 1-3. However, rather than using a single, space-consuming power supply line 5 as in the convention process, one of ordinary skill in the art in possession of the references of record, would have been led to utilize the process of Hirobumi et al to electroplate onto all of the connection pads since this process does not require a separate power supply line and is therefor more space-efficient as recognized by Hirobumi et al. Thus, the prior art of record would have suggested repeating the steps of Hirobumi et al to electroplate on more than one area of the substrate, utilizing different power connection portions and different circuits in these different areas.

Conclusion

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory

action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to WILLIAM T. LEADER whose telephone number is (571) 272-1245. The examiner can normally be reached on Mondays-Thursdays and alternate Fridays, 7:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Susy Tsang-Foster can be reached on 571-272-1293. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/William Leader/
July 31, 2008

/Susy Tsang-Foster/

Supervisory Patent Examiner, Art Unit 1795